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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/072,995	02/12/2002	Shigeki Kobayashi	219467US0X	5089

22850 7590 08/26/2003

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER

HU, HENRY S

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 08/26/2003

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No. 10/072,995	Applicant(s) KOBAYASHI ET AL.	
Examiner Henry S. Hu	Art Unit 1713	

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on June 13, 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- |                                                                                              |                                                                             |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other:                                          |

### DETAILED ACTION

1. This Office Action is in response to the Amendment (Paper No. 8) filed on June 13, 2003. Claim 1 was amended to correct only the typographical error, while Claim 10 was amended to remove the language of "type". New Claims 12-20 were added. The examiner confirms the support of Claims 12-20 in the specification as stated by the Applicants on page 3 of amendment. With respect to the specification objection regarding the use of PTFE, the Applicants have amended the paragraph in page 1 at lines 9-13 to define tetrafluoroethylene homo- and co-polymers. In view of above amendment, the 112-second paragraph rejection for improper form in Claim 10 and the Specification objection are now removed. **Claims 1-20 are now pending.** An action follows.

### *Claim Rejections - 35 USC 102*

2. *The limitation of amended **parent Claim 1** in present invention relates to a process for producing a tetrafluoroethylene polymer comprising polymerizing tetrafluoroethylene in an aqueous medium in the presence of a dispersant, a stabilizer and a polymerization initiator; wherein the polymerization initiator is **a redox polymerization initiator comprising a halogen acid salt  $YXO_3$ /a sulfite  $Z_2SO_3$** ; wherein X is a chlorine atom, a bromine atom, or an iodine atom, Y is a hydrogen atom, ammonium, an alkali metal or an alkaline earth atom metal, and Z is ammonium, an alkali metal or an alkaline earth metal.*

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3. Claims 1-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Malhotra (US 4,748,217), as evidenced by Gould (Inorganic reactions and Structure, 1962 ed., see page 84).

Since parent Claim 1 is only amended on the typographical error, the same rationale recited in paragraphs 3-5 of the previous action dated 02-13-2003 (Paper No. 5) is incorporated herein by reference. sw

With respect to new **Claims 12-20**, all the limitations have been disclosed by Malhotra and specifically demonstrated in examples 1-5. Regarding the polymerization under acidic condition for **Claim 18**, Malhotra discloses the use of bisulfite, which is equivalent to the claimed limitation using sulfite and acid together as discussed in Claim 1 through protonation.

***Response to Argument***

4. Applicant's Amendment (Paper No. 8) filed on June 13, 2003 has been fully considered but they are not persuasive. The focal arguments related to the patentability will be addressed as follows:

5. **Applicants:** Applicant has claimed an unexpected way of obtaining tetrafluoroethylene homo- and co-polymers by use of "a redox polymerization initiator comprising a halogen

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**acid salt  $YXO_3$ /a sulfite  $Z_2SO_3$** ” in the aqueous radical-induced polymerization. The prior art only discloses **a redox binary initiator system such as potassium bromate/sodium bisulfite**.

6. **Examiner:** Regarding the limitation of the amended parent Claim 1; it still carries the same language of **“a redox polymerization initiator comprising a halogen acid salt  $YXO_3$ /a sulfite  $Z_2SO_3$ ”**. The primary reference Malhotra has already disclosed the claimed preparation process using a bromate/bisulfite redox initiator system to obtain **tetrafluoroethylene homo- and co-polymers** (see column 2, line 8-16). Malhotra further discloses detailed process of polymerizing tetrafluoroethylene in the presence of **a redox binary initiator system of potassium bromate/sodium bisulfite**, and the polymerization process has been specifically demonstrated in **Examples 1-5**.

7. As discussed in the previous action, the limitation of parent Claim 1 in present invention includes a redox binary initiator system of  $YXO_3/Z_2SO_3$  such as potassium bromate/sodium sulfite by using an open language comprising, which does not exclude using uncited component such as acid. **This is further evidenced by page 10, line 8-14** of the instant specification regarding polymerization has been carried out **under an acidic condition by an addition of an acid such as hydrochloric acid**. In view of the statement disclosed by Gould as **“Bronsted base in either ions or molecules will take on protons to form the species called the conjugated acid of that base”** (page 84, paragraph 3), **with the addition of acid mentioned in present invention the sulfite ion will certainly add the proton to form the bisulfite ion, which then reads on Malhotra’s redox system**, the present invention would thereby inherently possess

**the bisulfite ions. A balanced chemical equation for this reaction can be as following:**

**$\text{Na}_2\text{SO}_3 + \text{HCl} = \text{NaHSO}_3 + \text{NaCl}$  to show the relationship between sulfite and bisulfite ions.** The rejection is thereby sustained.

8. In a close examination of the Applicants' amendment on page 5 at paragraphs 3-5, the reduction potentials for bisulfite are only relating to the sulfurous acid ( $\text{H}_2\text{SO}_3$ ), the conjugated acid of bisulfite ion. The reduction potentials presented by the Applicants cannot thereby be used for comparison between sulfite and bisulfite ions. It is noted that sulfurous acid, bisulfite and sulfite are related by only the degree of protonation according to the above-mentioned statement of Gould. Therefore, Claims 1-20 are rejected Malhotra, as evidenced by Gould.

### ***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Henry S. Hu whose telephone number is (703) 305-4918. The examiner can be reached on Monday through Friday from 9:00 AM –5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (703) 308-2450. The fax number for the organization where this application or proceeding is assigned is (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications. Any inquiry of general nature or relating to the status of this application or proceeding should be directed to the group receptionist whose telephone number is (703) 308-0661

  
Henry S. Hu

July 21, 2003

  
DAVID W. WU  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700